

ASYMMETRICAL MULTIPHASE DC-TO-DC POWER CONVERTER

ABSTRACT

A multiphase DC-DC converter architecture, in which respectively different channels have different operational performance parameters. These different parameters are selected so as to enable the converter to achieve an extended range of high efficiency. The converter contains a combination of one or more fast response time-based converter channels, and one or more highly efficient converter channels in respectively different phases thereof and combines the outputs of all the channels. The efficiency of the asymmetric multiphase converter is higher at light loads (up to approximately 12 amps), enabling it to offer longer battery life in applications that spend most of their operating time in the leakage mode, as noted above.